

CLAIMS

1. – A device for injecting a product, particularly for medical use, which comprises:

5 - a body housing a hollow injection needle and a container containing the injectable product; the needle is connected to the body but able to move relative to the latter between an injection position and a retracted position;

 - a plunger that slides in the body and is displaceable relative to the
10 latter to perform the injection; said container is closed at one end and is connected to this plunger but is able to move relative to the latter between a position that enables the injection to be performed and a retracted position;

 - means for keeping the needle in position, which means normally
keep the needle in the injection position and can be released to free the needle
15 to move to said retracted position;

 - means for keeping the container in position, which means normally keep the container in the position that enables the injection to be performed, and can be released to free the container to move to said retracted position;

20 - a piston engaged in the container and so shaped that, in a first configuration of the piston or relative position of this piston and of this container, it closes the container in such a way as to isolate the product from the environment outside this container and, in a second configuration of the piston or relative position of this piston and of this container, it allows the
25 product to pass out of the container, and

 - respective means for operating said means of holding the needle in position and said means of holding the container in position, which, at the end of the injection, release the means of holding the needle in position before, or at the same time as, the means of holding the container in position are
30 released.

2. – The injection device as claimed in claim 1, in which the piston is so shaped that, in said second configuration or position, it allows the product to pass between itself and the container.

3. – The injection device as claimed in claim 2, in which the piston
35 comprises at least one peripheral zone that is able, in said first configuration of the piston, to press tightly against the wall of the container, and, in said second

configuration of the piston, to withdraw under the pressure of the injectable product to allow the latter to pass it.

4. – The injection device as claimed in claim 1, in which the piston comprises a pierceable zone located in line with the proximal end of the needle.

5 5. – The injection device as claimed in one of claims 1-4, which comprises spring means for moving the needle and the container to the retracted position without voluntary external action.

10 6. – The injection device as claimed in one of claims 1-5, in which said body forms a distal wall perpendicular to the axis of the needle, from which the needle projects, in the injection position, to a distance equal to the desired depth of insertion of this needle during the injection.

7.- The injection device as claimed in one of claims 1-6, in which said means of holding the needle in position comprise:

15 - a needle-supporting part comprising at least one locking means; and

 - at least one tab that comprises a locking means able to engage with that of said needle-supporting part, this tab being moveable radially between a normal, radially inward position, in which said locking means engage with each other to keep said needle-supporting part in position relative to said body, and a radially outward position, in which a zone of the plunger moves this tab radially out to unlock it, thereby freeing said needle-supporting part from said body.

 8. – The injection device as claimed in one of claims 1-7, in which said means of keeping the container in position comprise:

25 - a flange formed at the opposite end of the container from the closed end of this container;

 - engagement means integral with said plunger for connecting said flange to the plunger; and

30 - at least one tab comprising said engagement means and able to move in the radial direction of this plunger between a radially inward position, in which said engagement means connect said flange to the plunger, and a radially outward position, in which said engagement means are withdrawn radially wide of this flange, thereby releasing it.